

Remarks/Arguments

Reconsideration of this application is requested.

Request for Continued Examination

A request for continued examination (RCE) is enclosed in response to the final Office Action mailed on September 3, 2008.

Claim Status

Claims 1-7, 9-12 and 15-25 were previously presented. New claims 26-28 are added. Claims 1-7, 9-12 and 15-28 are now pending.

Claim Rejections – 35 USC 103(a)

Claims 1-7, 9, 11, 12, 15 and 18-25 are rejected under 35 USC 103(a) as obvious over Hoshino (US 2004/0244771). Claims 10, 16 and 17 are rejected as obvious over Hoshino in view of Watanabe (US 4, 411, 231). In response, applicant traverses the rejections.

The present invention, as recited in independent claims 1, 3 and 6, provides the novel feature that when the control section has a failure, the control section itself shifts the electric motor to a regenerative mode. Rapid rotation of the throttle valve is thereby prevented with a simple system that does not require any added parts or additional housing space. In this regard, applicant is not suggesting that use of a “regenerative brake”, that is, shifting an electric motor to a regenerative mode to work as a braking means, is in itself inventive. Rather, the point of novelty is the reuse of the failed control section itself to shift the electric motor to the regenerative mode.

Typically, when a control section has a failure, one of ordinary skill in the art will abandon any control by the control section and seek other ways to cope with the failure. That is, one does not typically rely on the control section itself that caused the failure. Whereas the present invention uses the control section itself to rotate the throttle valve in the closing direction at an appropriate speed after a failure of the control section, in the prior art, if the control section has a failure, other means are employed to rotate the throttle valve in the closing direction. For example, a

secondary control section that replaces the primary control section when the primary control section has a failure may be provided.

The Action asserts that paragraph 0051 of Hoshino discloses that a control section is used to rotate the throttle valve in a closing direction after a failure of the control system. Applicant strongly disagrees. Hoshino's paragraph 0051 discloses that two springs 34 attached to the rotation shaft of throttle valve 2 are used as a failsafe mechanism for generating torque in opposite directions. Specifically, Hoshino states that a "preload is set to the springs 34 so that a torque of a predetermined value or more is applied to the valve in a direction of restoring the valve to the default position irrespective of the position of the valve. Thus, at a time of failure, occurrence of runaway or engine stall can be prevented by turning off a power source thereby to restore the valve to the default position".

Thus, Hoshino does not disclose or suggest that the "failure" in question is a failure of the control section itself and, more importantly, does not disclose or suggest that the reaction to the failure of the control section is reuse of the control section to control the speed at which the throttle valve is rotated in a closing direction. Rather, according to Hoshino, any failure necessarily results in application of the predetermined torque of springs 34 without any disclosed or suggested control by a control section. In this regard, Hoshino simply does what one of ordinary skill in the art expects in a failure situation, i.e., to abandon use of the control system.

The automatic application of a predetermined torque by springs 34 teaches against any control by a control section to control the speed at which the throttle valve is rotated, such as employed by applicant. Moreover, applicants reuse of the failed control section brings about an unexpected result, that is, the ability to still control the speed at which the throttle valve is rotated. These factors dictate against any finding of obviousness based on Hoshino.

The "Examiner's Response to Arguments" at page 10 of the Action quotes a portion of a sentence from applicant's previous response, 'While the H-bridge circuit

of FIG. 9 might raise a possibility that DC motor 33 could be changed to a regenerative mode', and asserts that this quoted language bolsters the Examiner's obviousness rejections. This is not correct and highlights the Examiner's misunderstanding of applicant's arguments. Importantly, the Examiner's quotation omits the second portion of applicant's sentence, which sets forth the crux of applicant's argument. The entire sentence from applicant's response reads as follows:

While the H-bridge circuit of FIG. 9 might raise a possibility that DC motor 33 could be changed to a regenerative mode, there is absolutely no disclosure or suggestion that a control section cuts off power from a power supply to DC motor 33 and then shifts it to the regenerative mode.

Thus, applicant merely admits that an electric motor can work as a generator. This is of course well known. Applicant's argument is that Hoshino absolutely does not disclose or suggest that, after a failure of a control section, the control section cuts off power from a power supply to DC motor 33 and then shifts it to the regenerative mode. On this point, the Action is silent.

Accordingly, since Hoshino does not disclose or suggest each and every feature of claims 1, 3 and 6, those claims and claims 2, 4, 5, 7, 9, 11, 12, 15 and 18-25 dependent thereon are not obvious over Hoshino. Regarding claims 10, 16 and 17, Watanabe is cited for its alleged relevance to a mechanism for driving a throttle valve manually. However, Watanabe does not remedy the deficiencies of Hoshino discussed above with respect to claims 1, 3 and 6. Thus, claims 10, 16 and 17 are not obvious over Hoshino in view of Watanabe.

For these reasons, the rejections under 35 USC 103(a) of claims 1-7, 9-12 and 15-25 should be withdrawn.

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New Claims

New claims 26-28 are added and are similar to claims 1, 3 and 6, but delete the limitation that the control section cuts off a power from a power supply to the electric motor and then shifts the electric motor to the regenerative mode. In this regard, as discussed above, the use of the control section itself to shift the electric motor to a regenerative mode to control a rotation of the throttle valve when the control system has a failure is sufficient to distinguish over the art of record.

Conclusion

This application is now believed to be in condition for allowance. The Examiner is invited to contact the undersigned to resolve any issues that remain after consideration and entry of this amendment. Any fees due with this response may be charged to our Deposit Account No. 50-1314.

Respectfully submitted,

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